

specification and routine procedures that were well known to those of ordinary skill in the art as of the filing date of the application. Hence, as of the filing date of the application, it was routine to (1) attach catalyst nanoparticles e.g., proteins containing metal ions such as ferritin, to biomolecules, (2) align biomolecules with a substrate, (3) covalently attach biomolecules to a substrate, (4) remove biomolecules from a substrate while optionally converting the catalyst nanoparticles to metal oxides that attach to a substrate, and (5) grow carbon nanotubes on a substrate using catalyst nanoparticles. The applicants have provided sufficient guidance throughout the specification to show one of ordinary skill how to make and use the invention, including detailed descriptions of the several ways for carrying out each step of the claimed invention and, when appropriate, direction to well known techniques in prior art patents and literature references.

As stated in the Wu Declaration, the techniques required to practice each step called for in the pending claims are highly predictable based on the large body of literature that was available to one of skill in the art at the time the application was filed. However, without conceding the validity of the Examiner's rejection, the applicants intend to submit a second declaration which provides specific citation to journal articles and demonstrates the nature and amount of experimentation the declarant would require to practice the claimed invention. The declaration will be filed in the coming weeks, and will describe how the claimed techniques may be used predictably in combination with one another to arrive at the presently claimed methods.

For the reasons set forth above, applicants respectfully submit the rejection of the claims under 35 U.S.C. § 112, first paragraph for lack of enablement has been overcome. Nevertheless, the Examiner should expect a second declaration in the coming weeks which will further demonstrate that the present specification teaches how to make and use the claimed invention without undue

experimentation. Thereupon, reconsideration of the claims and withdrawal of the rejection thereof for lack of enablement under 35 U.S.C. §112, first paragraph is respectfully requested.

Claim Rejections - 35 USC § 103

Claims 1-4, 8-9, 11, 15-21, and 39-41 were rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,515,339 to Shin, et al. and US 6,737,939 to Hoppe in view of Applicants alleged admissions.

In response, the applicants again remind the Examiner that, when applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

“(A) The claimed invention must be considered as a whole;

(B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;

(C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and

(D) Reasonable expectation of success is the standard with which obviousness is determined.” (See MPEP 2141(II); emphasis added).

In the present rejection, the Examiner has done no more than list twenty-four excerpts from the specification which describe prior art techniques that may be employed in the practice of the presently claimed invention. The Examiner has not, however, provided any argument as to why the any of the references cited within these excerpts provide a suggestion or motivation to combine their teachings to arrive at the presently claimed invention. The Shin and Hoppe references do not remedy the Examiner’s failure to establish a *prima facie* case. Shin teaches that carbon nanotubes can be grown from catalysts deposited at specific locations on a substrate, and Hoppe teaches two techniques for depositing the nanoparticles that are distinct from the techniques recited in the

present claims (i.e., sputtering and electron beam evaporation). Nowhere in the Shin or Hoppe is there a teaching or suggestion that biomolecules could or should be used for the patterning of catalysts onto a substrate.

Applicants' prior assertion that *each step* of the pending claims could be practiced predictably based on the prior art is *not* an admission that the prior art renders the present claims obvious *as a whole*. The references cited by the Examiner and described in the present specification do not provide the requisite motivation to *combine* these steps to arrive at the claimed invention.

In *KSR v. Teleflex*, the court stated that:

A patent composed of several elements is not proved obvious merely by demonstrating that each element was, independently, known in the prior art. Although common sense directs caution as to a patent application claiming as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does. ... This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known. (127 S. Ct. 1727, 1740; emphasis added).

As recognized in *KSR* most inventions are the combination of known devices and the Supreme Court cautions against the use of hindsight by stating the importance to identify a reason that would have prompted a person of ordinary skill in the art to combine the elements as the new invention does. Applicants contend that the Examiner has used hindsight reconstruction afforded by the present specification and claimed invention to provide the requisite motivation to support his rejection. The Examiner bears the burden of factually supporting any *prima facie* conclusion of obviousness. Based on the above remarks, the applicants' submit that the Examiner's initial burden has not been met and the obviousness rejection is therefore improper.

Moreover, if the Examiner believes that general “design incentives” or other “market forces” allegedly provide the motivation to practice the claimed invention *as a whole*, then the Examiner must support such a contention with evidence. The Supreme Court’s holding in *KSR* does not allow the Examiner to make a blanket statement that design incentives or market forces merely exist. Instead, the court states that:

it will often be necessary to look to interrelated teachings of multiple patents; to the effects of demands known to the design community or present in the marketplace; and to the background knowledge possessed by a person having ordinary skill in the art. To facilitate review, this analysis should be made explicit. (127 S. Ct. 1727, 1739; emphasis added).

The Examiner has not provided an analysis that includes a discussion on any demands known in the design community or present in the marketplace, and design or market demands are not expressed or implied by the prior art of record, including Shin or Hoppe. Based on the foregoing remarks, Applicants respectfully submit that the Examiner’s has not established a *prima facie* case and, therefore, the rejection is improper.

CONCLUSION

Each and every point raised in the Office Action dated January 8, 2008 has been addressed on the basis of the above remarks. In the coming weeks, applicants will submit a second declaration which provides an additional factual basis for their arguments traversing the enablement rejection. In view of the foregoing it is believed that all pending claims are in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining which the Examiner believes could be resolved through a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

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Respectfully submitted,

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